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September 20, 1999

CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814
Attention: Rick Breitenbach

RE: Comments on the June 1999 Draft Programmatic Environmental Impact Statement/Environmental Impact Report

Dear Mr. Breitenbach:

The Turlock and Modesto irrigation districts appreciate the opportunity to review the June 1999 Draft Programmatic Environmental Impact Statement/Environmental Impact Report (PEIS/EIR). Our specific comments to the PEIS/EIR and its technical appendices are enclosed as Attachment A. A background statement and general comments are as follows:

Background Statement

The Turlock and Modesto irrigation districts own, operate and manage New Don Pedro Reservoir on the Tuolumne River. We are also responsible for maintaining flows in the Tuolumne River for the benefit, in part, of fall-run chinook salmon and for habitat restoration along the river corridor as required by our Federal Energy Regulatory Commission (FERC) license. In addition, the districts, together with our fellow members of the San Joaquin River Group, have negotiated the San Joaquin River Agreement (SJRA) which includes the Vernalis Adaptive Management Plan (VAMP). Under the terms of the VAMP, which is still under consideration by the State Water Resources Control Board, additional releases of water will be made from New Don Pedro Reservoir during the spring pulse period over and above the required FERC flows for the intended benefit of fall-run chinook salmon. The districts are also unique in that we are two of only four irrigation districts in California that are also in the business of supplying wholesale and retail electric power. We also purchase power from the Western Area Power Administration (Western). As such, we pay Western additional fees that support the CVPIA Restoration Fund.

Recognizing that the districts have undertaken actions on the Tuolumne River that will lead to habitat improvement and restored fish populations, independent of the CALFED Bay-Delta

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Program, and that we will not receive tangible benefits from the plan in terms of improved water quality or water supply, we do realize that it is in the best interest of all Californians that the Bay-Delta plan be successfully implemented. We further implore that CALFED hold to its guiding Solution Principles, especially in terms of (1) no significant redirected impacts and (2) that costs of the program actions should be borne by the beneficiaries.

General Comments

1. Too much emphasis has been placed on water conservation, water transfers and water use efficiency as the basis for demand management measures to reduce the need for additional storage facilities that will directly and measurably increase water supply certainty, improve water quality and help meet environmental restoration goals. Many assumptions of water savings are based on actions that have not been extensively implemented or proven to provide such levels of water savings.

   We strongly support that a firmer commitment to the construction of increased surface storage facilities and improved cross Delta conveyance be a part of the final plan. It appears that the test for new storage is being established in such a way that the "need" will never be able to be demonstrated, especially in terms of linking new storage to "demonstrated progress in meeting the Program's water use efficiency, water reclamation, and water transfer program targets" when the water savings and usage under these actions is clearly overestimated.

2. There appears to be many broad-based, unfounded presumptions regarding future water availability and that willing sellers will be available to provide more water in dry and critically dry years. CALFED is overestimating the amount of water users will be willing to sell, particularly during periods of drought.

3. Local jurisdiction over land use decisions must be retained as it relates to temporary or long-term fallowing, land retirement, or land acquisitions.

4. Inter-basin water transfers or operational exchanges of water will not be effective if the water can't be moved in a timely response to satisfy the need generated by the intended conveyance of water. In order to timely respond to changing hydrologic and biologic conditions, there needs to be some flexibility provided to delta protection and outflow standards. We support the development of a balanced Environmental Water Account that can address water supply, water quality and environmental benefits by addressing this issue.

5. We are concerned with the lack of detail, at even the programmatic level, regarding the amount, crop type and location of agricultural land conversion that is assumed to be retired in the San Joaquin River Region as described in the Water Quality Program Plan.

6. There are instances in the plan where it appears that the benefits of a proposed action are counted twice. For example, the conclusion that increased water conservation will result in reduced diversions and, therefore, more water for environmental purposes, contradicts the notion that increased conservation will result in more water stored in reservoirs and therefore increase the value of recreation.

7. There is no evidence of a population of steelhead present in the Tuolumne River. All references to existing populations of Tuolumne River steelhead or intended actions on the Tuolumne River to provide spawning and rearing habitat for steelhead should be stricken from the record.

8. Any proposed changes in the operation of New Don Pedro Reservoir could impact recreational facilities, hydroelectric power generation, downstream environmental uses, water available for irrigation and domestic purposes, etc. Any reduction in water supply reliability for agricultural, domestic or environmental purposes; quality and use of recreational facilities; water quality; or hydroelectric power generation and the associated revenues would not be acceptable.

9. From the documentation provided, it was impossible to analyze the accuracy of the modeling of TID/MID facilities, determine if the assumptions made were accurate or evaluate potential impacts to the Districts or their customers. Adverse impacts to the Districts and their customers would not be acceptable.

10. The Draft Programmatic EIS/EIR "identifies general mitigation strategies as ways to avoid, minimize, restore or compensate for potentially significant losses." (p. 4-7) However, the PEIS/EIR, in many cases goes further and indicates that "potentially adverse impacts can be mitigated to less-than-significant levels." (p. 5.4-40) Due to the general nature of the PEIS/EIR, there is insufficient detail to evaluate whether or not impacts can be mitigated to "less-than-significant levels."

11. Impacts to the water quality being supplied to agricultural customers, costs of supplying the water, etc. should be analyzed if modifications to the existing system or practices are proposed. For example, construction of off-stream storage and conjunctive use programs are proposed. Incorporated into these projects are assumptions that water supplies from these facilities could be utilized locally for agricultural and other uses, in exchange for increased stream flows for environmental or other downstream uses. Any reduction is water quality available for local purposes would not be acceptable.

12. Part of the analysis evaluates the potential for the proposed program to result in additional population growth. In addition, substantial population growth is projected by the Department of Water Resources, within the San Joaquin Valley, without the proposed program. It is anticipated that existing water supplies within the districts will be put to use to meet existing and future M&I demands within our service areas.

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13. The districts are opposed to any reallocation of water rights by CALFED that would require additional releases of water from upstream tributaries and still allow Delta export pumping to continue. Not only would this violate CALFED's solution principles, it also violates California water rights law, including area of origin and watershed protections statutes.

14. The Tuolumne River is a fully appropriated stream. The FERC Settlement Agreement in 1995 has resulted in significantly increased flow requirements on the Tuolumne River beginning in 1996. It is clear from the PEIS/EIR that these new flow requirements were not accurately represented in the assumptions of the Tuolumne River flows used in the modeling for this project, resulting in a misrepresentation of the water availability.

15. Proposed water temperature restrictions for the Tuolumne River are not based on sound science and would have a very significant adverse impact on the water supply and operations of the districts and possibly the City and County of San Francisco.

In closing, the Turlock and Modesto irrigation districts appreciate the opportunity to review and comment on the draft PEIS/EIR. It is anticipated that CALFED will seriously consider each of the comments received, correct the errors identified, and adequately address our concerns.

Sincerely,

MODESTO IRRIGATION DISTRICT

Allen Short
General Manager
Modesto Irrigation District

TURLOCK IRRIGATION DISTRICT

Chris L. Kiriakou
Interim General Manager
Turlock Irrigation District

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ATTACHMENT A

SPECIFIC COMMENTS

PROGRAMMATIC EIS/EIR:

1. Page 3-6. The cumulative impacts to the San Joaquin River Region are not evaluated.

2. Page 4-15. The area affected by the proposed off-stream storage reservoir in the San Joaquin River region is not included in Table 4-4.

3. Pages 5.1-15 & 16. **Tuolumne River.** The section describing the Tuolumne River has numerous inaccuracies in the flow, storage and diversion information. The section to be changed as follows:

   Second paragraph -- Substitute the following for the last sentence:

   > Lake Eleanor (27 TAF capacity) was constructed in 1917. Cherry Lake (274 TAF capacity with flashboards) was completed in 1955 to increase the aqueduct yield. In addition, water diverted by San Francisco through its aqueduct is stored in its Bay Area reservoirs with a combined storage capacity of about 225 TAF (Calaveras, 97 TAF; Crystal Springs, 58 TAF; San Andreas, 19 TAF, San Antonio, 51 TAF).
   >
   > San Francisco's aqueduct has a conveyance capacity of 464 cfs and diverts to the Bay Area about 250 TAF per year (323 TAF in 1988).

   Third paragraph – Substitute the following for the second sentence:

   > Of this, up to 1.1 MAF is used for diversions and up to 300 TAF is used for minimum in-stream flows.

   Make the following changes to the fourth paragraph:

   > In the second line, substitute the words "up to 1.1 MAF" for "about 900 TAF" and "up to 300 TAF" for "200 TAF" and add the word "minimum" before "in-stream flows".
   >
   > The fourth sentence beginning with "Annual average storage releases..." should be removed. It is not an accurate representation Don Pedro releases.
   >
   > Substitute the following for the last line:
   >
   > Average carryover storage from 1974-1998 is 1.332 MAF as of September 30 consisting of the following: 309 TAF of dead storage, about 429 TAF of San Francisco (water bank) exchange storage, and about 594 TAF of net Districts' water.

   Switch the order of the fifth and sixth paragraphs.

   Substitute the following for the last paragraph:

   > As a result of a mediated settlement, minimum in-stream flow requirements for the New Don Pedro FERC hydropower license were increased in 1996. Prior to that, minimum in-stream flow requirements ranged from 40 TAF to 123 TAF per water year. Under the new requirements, minimum in-stream flow

will range from 94 TAF to 301 TAF depending upon the water year type. Flows are specified for the October-to-May salmon resident period with blocks of water for fall and spring pulse flows and summer habitat maintenance flows. The October-to-May flows vary from 100 cfs to 300 cfs with pulse flows of 500-3,000 cfs. The summer habitat maintenance flows vary from 50 to 250 cfs.

4. Page 5.1-15. "La Grange Dam is the upstream limit for anadromous fish on the Tuolumne River. Salmon spawn in the 25-mile reach between La Grange Dam and the town of Waterford, and rear in the entire Lower Tuolumne River. Based on historical records between 1970 and 1997, median monthly flow below La Grange Dam is about 230 cfs and ranges between 10 cfs (10th percentile) and 3,100 cfs (90th percentile)."

   Comment: The above referenced flows are accurate from a historical perspective, but are an inaccurate representation of current flow requirements. As a result of a mediated settlement, minimum in-stream flow requirements for the New Don Pedro FERC hydropower license were increased in 1996. For example, the current minimum in-stream flow requirement is 50 cfs, not the 10 cfs indicated. The Tuolumne River is a fully appropriated stream. It is clear that CALFED modeling may be underestimating the current in-stream flow requirements, resulting in an overestimation of water availability on the Tuolumne River.

5. Pages 5.1-15 & 16. The original impoundment of the lower reach of the Tuolumne River pre-dates the formation of either Turlock or Modesto irrigation districts, with the construction of Wheaton Dam in the mid-1870's.

6. Page 5.1-29. "Water use in the San Joaquin River Region is expected to decrease under the No Action Alternative based on an analysis of CVP demands conducted by the Bureau of Reclamation... Average annual depletion of applied water is expected to decrease in all four major river basins under the No Action Alternative. Annual depletions are expected to decrease 25 TAF from existing conditions for the eastside San Joaquin Valley north of the Tuolumne River. Similarly, annual depletions are expected to decrease 27 TAF... from existing conditions between the Tuolumne and Merced Rivers..."

   Comments: It is unclear how the above referenced "average annual depletion of applied water" was established. The areas within the Turlock and Modesto irrigation districts do not utilize CVP water, therefore utilizing CVP projections for non-CVP irrigated lands is unrealistic. The districts do not anticipate that magnitude of reduced water usage within their service areas. Any depletion in agricultural water usage within the districts is anticipated to be utilized for other beneficial uses within their service areas, and would not be available for use outside their boundaries.

7. Page 5.1-36. **Water Transfer Program...** *In addition to the listed benefits, there are potential negative impacts associated with water transfers that need to be evaluated and, if necessary, mitigated for. The potential negative impacts associated with water transfers are ignored in this section of the document. Potential impacts include, but are not limited to: groundwater substitution, third party impacts associated with water transfers and/or land fallowing, etc.*

8. Pages 5.1-41, 5.1-48, 5.1-54 & 55, & 5.1-63. "With new storage facilities, implementation of (the) Alternative... under (the various) assumptions reduces long-term and dry and critical year carryover storage in existing facilities from on the order of... (between 50 - 620 TAF depending on the alternative) relative to the No Action Alternative...

   Comments: It is not clear when reading the document that these paragraphs are referring to Sacramento River storage only. The paragraphs should be clarified by stating that the various "assumptions reduces long-term and dry and critical year carryover storage in existing Sacramento River facilities."

9. Pages 5.1-42 & 43, 5.1-49, 5.1-56, & 5.1.64 & 65. (Tables: 5.1-3 thru 5.1-8, 5.1-13 & 5.1-14) These tables give "Estimated Ecosystem Restoration Program Water Acquisitions..." with and without new

storage, under Alternatives 1,2, 3 and the Preferred Program Alternative, in thousands of acre-feet for each of the various water type years (critical, dry, below normal, above normal, and wet).

Comments: It is stated that the ecosystem restoration flow targets for the San Joaquin River Region vary with the 60-20-20 index. Even though no critical year targets are specified for the Tuolumne River based on the 60-20-20 index, target values are included in the tables because the 40-30-30 index was used instead. What is the rationale behind this approach? It is difficult, if not impossible, to evaluate the modeling, or the potential impacts to the San Joaquin River system with the information given. The Estimated Ecosystem Restoration Program Water Acquisitions (with and without new storage scenarios) for all 4 alternatives show additional water from the Tuolumne River in dry and critically dry water year types. CALFED should be cautioned that there is a very high likelihood that there will not be additional water available nor willing sellers from the Tuolumne River during these year types. The Tuolumne River is a fully appropriated stream. The FERC Settlement Agreement in 1995 has resulted in significantly increased flow requirements on the Tuolumne River beginning in 1996. It appears from some of the conclusions and recommendations in the document that these new flow requirements were not accurately represented in the assumptions of the Tuolumne River flows used in the modeling for this project, resulting in a misrepresentation of the water availability.

10. Page 5.2-13. "While changes in reservoir release flows were estimated for each of the larger facilities in the Sacramento and San Joaquin River Regions, results are aggregated for purposes of presentation..."

Comments: The districts were unable to evaluate the potential impacts to Don Pedro operations, water availability, impacts to hydroelectric power generation, etc. due to the "aggregation" of information. In addition, elsewhere in the documentation the PEIS/EIR infers that no reoperation of reservoirs are assumed. For example, on page 5.2-29, the PEIS/EIR states that "Average monthly San Joaquin River Region reservoir releases are unchanged from the No Action Alternative by implementation of Alternative 1. Release patterns are not influenced by varying water management strategies or by implementation of new surface storage."

11. Page 5.2-21. **Water Use Efficiency Program.** "Improved water use efficiency could alter the timing and reduce the amount of water diverted to supply agricultural, urban and ecosystem uses. These changes could affect riverine hydraulics by reducing the number and size of diversions, and result in the redistribution of reservoir releases."

Comment: Within the Turlock and Modesto groundwater basins, the majority of groundwater recharge is due to the deep percolation of imported surface water, applied for irrigation, that percolates past the crop's root zone and recharges the aquifer. Potentially significant adverse impacts could result from agricultural water conservation. Municipal utilities, private businesses and homeowners in the basins rely on the groundwater as their sole source of supply. In addition, the agricultural community relies on the groundwater to supplement surface water supplies, and in some cases, if they do not have access to surface water supplies, groundwater is their sole source. To the extent that agricultural conservation occurs, less water would be recharging the aquifer. In many cases, agricultural conservation comes in the form of converting to drip, microsprinklers, or solid set sprinklers. It is easier for these types of systems to utilize groundwater, since utilizing surface water requires additional equipment for filtration, reservoirs, etc. and is not available on demand. As a result, not only do these types of systems significantly reduce the recharge occurring due to irrigation, but many of these systems create an additional draw on the groundwater system. Any water "conserved" within the districts will be put to other beneficial uses within their respective service areas, such as urban usage and artificial groundwater recharge. Additional water is not anticipated to be available for other purposes.

12. Pages 5.2-29, 5.2-34, 5.2-40 & 5.2-49. "Average monthly San Joaquin River Region reservoir releases are unchanged from the No Action Alternative by implementation of Alternative... Release patterns are not influenced by varying water management strategies or by implementation of new surface storage."

Comments: Under each alternative studied, reservoir releases are considered unchanged. However, increased flows are anticipated on the San Joaquin River. This is contradictory. Due to the lack of specific information available, the districts were unable to analyze the potential impacts.

13. Page 5.2-28. **River Flows.** "Under Alternative 1, San Joaquin River flow is unchanged throughout the year relative to the No Action Alternative except for early spring. Alternative 1 increases average monthly flow in spring by as much as 1,600 cfs over the long-term period. This range is not influenced by storage or water management assumptions. Similarly, in dry and critical years, Alternative 1 increases average monthly flow in spring by as much as 1,300 cfs."

Comments: This seems inconsistent with the paragraphs on page 5.2-29 which indicate that "maximum average monthly releases range from 550 to 560 cfs for the long-term period and from 340 to 350 cfs for dry and critical years." In addition, page 5.2-29 states that "Average monthly San Joaquin River Region reservoir releases are unchanged from the No Action Alternative by implementation of (the) Alternative..." It is unclear where the additional flows are anticipated to come from.

14. Pages 5.2-29, 5.2-35, 5.2-41 & 5.2-50. **New Reservoir Diversions and Releases.** "New San Joaquin River Region surface storage diversions typically occur from fall through spring. Diversions continue as late as midsummer, since snow melt constitutes a significant portion of runoff. Maximum diversions during dry and critical years occur in early summer...,while average monthly diversions over the long-term period are greatest in late winter..."

Comments: The Tuolumne River is a fully appropriated stream. As a result of a mediated settlement, minimum in-stream flow requirements for the New Don Pedro FERC hydropower license were increased in late 1996 which has impacted water availability on the Tuolumne River. It is clear that these additional flow requirements were not accurately represented in the modeling of the San Joaquin River region. In addition, fall flows along the San Joaquin River are required for salmon migration and spawning purposes. These flows would not be available for diversion into new storage facilities, or rediversion downstream. Due to the ambiguity of the documentation, the districts were unable to determine the origin of the proposed water anticipated to fill the "new surface storage." Insufficient data regarding the assumed diversions and releases was available to evaluate the accuracy of these assumptions, and the potential impacts on the districts' operations, or river flow requirements. Any potential adverse impacts including, but not limited to, riverine habitat, water supply reliability, and hydropower generation resulting from the proposal must be mitigated.

15. Page 5.2-34. **River Flows.** "Under Alternative 2, San Joaquin River flow is unchanged throughout the year relative to the No Action Alternative except for early spring. Alternative 2 increases average monthly flow in spring by as much as 1,600 cfs over the long-term period. This range is not influenced by storage or water management assumptions. Similarly, in dry and critical years, Alternative 2 increases average monthly flow in spring by as much as 1,400 cfs."

Comments: This seems inconsistent with the paragraphs on page 5.2-35 which indicate that "maximum average monthly releases range from 550 to 560 cfs for the long-term period and from 340 to 350 cfs for dry and critical years." In addition, page 5.2-34 states that "Average monthly San Joaquin River Region reservoir releases are unchanged from the No Action Alternative by implementation of (the) Alternative..." It is unclear where the additional flows are anticipated to come from.

16. Page 5.2-40. **River Flows.** "Under Alternative 3, San Joaquin River flow is unchanged throughout the year relative to the No Action Alternative except for early spring. Alternative 3 increases average monthly flow in spring by as much as 1,600 cfs over the long-term period. This range is not influenced by storage or water management assumptions. Similarly, in dry and critical years, Alternative 3 increases average monthly flow in spring by as much as 1,500 cfs."

Comments: This seems inconsistent with the paragraphs on page 5.2-41 which indicate that "maximum average monthly releases are approximately 570 cfs for the long-term period and 360 cfs for dry and critical years." In addition, page 5.2-40 states that "average monthly San Joaquin River Region reservoir releases are unchanged from the No Action Alternative." It is unclear where the additional flows are anticipated to come from.

17. Page 5.2-49. **River Flows.** "Under the Preferred Program Alternative, San Joaquin River flow is unchanged throughout the year relative to the No Action Alternative except for early spring. The Preferred Program Alternative increases average monthly flow in spring by as much as 1,600 cfs over the long-term period. This range is not influenced by storage or water management assumptions. The same trends occur during the long period and dry and critical years, with an increase of 1,300 cfs in monthly average flow for dry and critical years."

Comments: This seems inconsistent with the paragraphs on page 5.2-50 which indicate that "maximum average monthly releases range from 550 to 560 cfs for the long-term period and from 340 to 350 cfs for dry and critical years." In addition, page 5.2-49 states that "Average monthly San Joaquin River Region reservoir releases are unchanged from the No Action Alternative by implementation of the Preferred Program Alternative." It is unclear where the additional flows are anticipated to come from.

18. Page 5.3-4. **Mitigation Strategies.** The PEIS/EIR lists a number of potentially significant adverse impacts, along with several mitigation strategies including, "Releasing additional water from storage in existing reservoirs or groundwater basins."

Comments: Surface water stored in existing reservoirs, and/or available groundwater should not be used to mitigate for the adverse impacts to water quality resulting from implementation of the CALFED program. In addition, water from these sources should not be used to mitigate existing water quality problems in the San Joaquin River. There is a shortage of water available to meet the State's water resources needs now and in the future. Utilizing good quality water to dilute poor quality water is not a recognized beneficial use of water and should not be considered an option.

19. Page 5.3-17. **San Joaquin River Region.** "Surface and subsurface agricultural drainage waters are the major source of salts in the San Joaquin River."

Comments: According to information presented by the Department of Water Resources, at a series of informational meeting on the proposed Salt and Boron Basin Plan Amendment, 81% of the salt loading in the San Joaquin River region is coming from the Grasslands, Northwest side, and the San Joaquin River upstream of Salt Slough. Therefore, it would be more appropriate to state that "Surface and subsurface agricultural drainage waters from the west side of the valley are the major sources of salts in the San Joaquin River."

20. Page 5.3-27. **Water Use Efficiency Program.** "In most cases, it is expected that the localized adverse water quality impacts of Water Use Efficiency Program can be mitigated to a less-than-significant level by increasing treatment of wastewater before it is discharged to waterways, increasing fresh-water releases from reservoirs to provide more dilution water,..." (emphasis added)

Comments: One means of conserving agricultural water requires the reuse of water and the reduction of spills. Which in turn reduces the water quality available for agriculture, and has the potential to increase the concentration of constituents in the water spilled to the river. Mitigating water quality problems created by water conservation by increasing freshwater releases to dilute poor water quality discharges defeats the purpose of instituting the water conservation measures. Water saved due to water conservation measures

should be put to beneficial use, not discharged into the rivers to mitigate for the water quality problems created by the very same water conservation measures.

21. Page 5.3-34. **San Joaquin River Region.** "General impacts of storage and conveyance options on upstream water quality in the San Joaquin River Region are expected to be similar to those described for the Sacramento River Region." Under the Sacramento River Region, the PEIS/EIR states that "surface water releases from Sacramento tributary storage may be confined to those needed to meet consumptive uses in adjacent service areas in order to prevent temperature changes to the... river." It goes on to state that "inflows to streams from off-tributary reservoirs would be uncommon. More frequently, stored water would be delivered to water users via canals, in exchange for reduced instream diversion."

    Comments: No adverse redirected impacts should be allowed as a result of changes in operational practices. Water supply reliability, water quality, hydroelectric power generation, etc. should be reviewed to ensure no adverse impacts to water rights holders are associated with the proposed change in water uses. These passages are contradictory to information provided in section 5.1 of the PEIS/EIR that indicates that "new San Joaquin River Region surface storage facilities were dedicated to providing water for Ecosystem Restoration Program flow targets."

22. Figure 5.3-2. The figure shows that the water quality with storage is worse than the water quality without storage. In Figure 5.3-3, on the same page, shows the reverse trend.

    Comments: Figure 5.3-2 is inconsistent with the text that states that water quality would be improved with additional storage.

23. Pages 5.3-38 & 5.3-49. **San Joaquin River Region.** The PEIS/EIR analysis of projected impacts on water quality due to Alternative 1 and the Preferred Alternative indicate that "the average annual increase in the salinity of water exported to the San Joaquin River Region via the DMC... compared to the No Action Alternative is projected to range from... (–2 to 20% depending on the alternative) for long-term averages. The resultant net change in salt loads delivered to the valley is more difficult to project... However, the effect would be to increase salt loads and the resultant recycling of salts in the San Joaquin Valley."

    Comments: Any increase in salt loading is unacceptable. There are existing salt loading problems in the San Joaquin River region. The majority of which has been identified as coming from the west side of the valley, through agricultural surface and subsurface drainage due to the recirculation of San Joaquin River salts created by the use of Delta-Mendota Canal water. The Regional Water Quality Control Board is developing a Salt and Boron Basin Plan Amendment to address the salt problems in the San Joaquin River system. Any increase in salt loading would not be acceptable.

24. Page 5.3-57. **Water Use Efficiency Program.** "Increased water use efficiency would adversely affect water quality when the volume of municipal wastewater or agricultural tailwater discharged to the stream is reduced by the mass load of slats and other contaminants in the discharge remains the same... It is expected that, in most cases the localized adverse water quality impacts of the program can be mitigated to less-than-significant levels by increasing fresh-water releases from reservoirs to provide more dilution water."

    Comments: Increasing fresh-water diversions to dilute poor water quality created by conservation measures defeats the purpose of "conserving" water for other beneficial purposes. No redirected impacts associated with these practices would be acceptable.

25. Page 5.3-58. "Degradation of water quality by nonpoint sources is more difficult to mitigate. The available mitigation strategies for nonpoint sources include implementing various BMP's but they are expected to largely fall short of fully offsetting the overall increase in nonpoint source loads attributable to growth... The following mitigation strategies related to nonpoint source loads... Releasing additional water from storage in existing reservoirs or groundwater basins."

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Comments: Dilution is not the answer, and should not be considered as a potential mitigation measure. The redirected impacts associated with implementing BMP's are not acceptable. If dilution is absolutely necessary, new storage should be utilized, and not existing reservoirs and groundwater.

26. Page 5.4-3. The PEIS/EIR states that "No potentially significant unavoidable impacts on groundwater are associated with the Preferred Program Alternative."

    Comments: The conclusion is based on a wide range of broadly based assumptions. There is insufficient analysis to determine the potential impacts to groundwater resources due to the proposed project.

27. Page 5.4-4. The PEIS/EIR states that "... the Program is developing guiding principles for conjunctive use programs to ensure that local concerns and potential impacts are fully addressed prior to implementing a conjunctive use operation."

    Comments: Guiding principles might not be enough. Assurances need to be in place to ensure any potential negative impacts to water supply reliability, water quality, or other impacts related to the proposed program are mitigated.

28. Page 5.4-17. "In some areas, high groundwater levels rather than declining water levels are the principal concern. In the lower reaches of the San Joaquin River, the confluences of major tributaries and in certain other areas, a high water table reduces use of land for agriculture. In the western portion of the Stanislaus River watershed, groundwater pumping historically has been used to control high groundwater levels. Along the San Joaquin River from the confluence with the Tuolumne River through the south Delta, flood control operations in conjunction with spring pulse flow requirements recently have contributed to seepage-induced waterlogging damage of low-lying farmland."

    Comments: We are not aware of any seepage problems resulting from spring pulse flows. The amount of water associated with spring pulse flows is generally not sufficient to cause waterlogging damage. Seepage-induced waterlogging is a problem, however, associated with flood control operations.

29. Page 5.4-17. "Agricultural use of groundwater is limited by boron in eastern Stanislaus and Merced Counties..."

    *Comments: The reference should be to **western** Stanislaus and Merced counties. No known boron problems are associated with eastern Stanislaus and Merced counties.*

30. Page 5.4-22. Insufficient information was available to analyze the accuracy of the assumptions made in the assessment of groundwater resources using CVGSM.

31. Page 5.4-41. "Additional in-streamflow requirements may result in reduced frequency of meeting agricultural (and to some extent) municipal and industrial demands in the San Joaquin River Region relative to the No Action Alternative. This would put increased pressure on groundwater resources to supply the unmet demand and could result in potentially significant adverse impacts on groundwater resources in some basins during low runoff years. These impacts can be mitigated to less-than-significant levels."

    Comments: Insufficient information is available to make the determination that the impacts could be mitigated to less-than-significant levels.

32. Page 5.4-41. The PEIS/EIR states that "Agricultural and landscape water use efficiency could cause reductions in recharge to the water table aquifer. These reductions would probably not be significant compared to the amount of recharge that occurs along stream channels during high-flow periods but, if not replaced, the loss of recharge could result in declines in the shallow water table."

Comment: Within the Turlock and Modesto groundwater basins, the majority of groundwater recharge is due to the deep percolation of imported surface water, applied for irrigation, that percolates past the crop's root zone and recharges the aquifer. Potentially significant adverse impacts could result from agricultural water conservation. Municipal utilities, private businesses and homeowners in the basins rely on the groundwater as their sole source of supply. In addition, the agricultural community relies on the groundwater to supplement surface water supplies, and in some cases, if they do not have access to surface water supplies, groundwater is their sole source. To the extent that agricultural conservation occurs, less water would be recharging the aquifer. In many cases, agricultural conservation comes in the form of converting to drip, microsprinklers, or solid set sprinklers. It is easier for these types of systems to utilize groundwater, since utilizing surface water requires additional equipment for filtration, reservoirs, etc. and is not available on demand. As a result, not only do these types of systems significantly reduce the recharge occurring due to irrigation, but many of these systems create an additional draw on the groundwater system. Any water "conserved" within the districts will be put to other beneficial uses within their respective service areas, such as urban usage and artificial groundwater recharge. Additional water is not anticipated to be available for other purposes.

33. Page 5.4-47. "**Irreversible and Irretrievable Commitments.** Implementation of the Program could result in some irreversible and irretrievable commitments of existing groundwater resources. In addition to short-term direct groundwater deficiencies due to water supply demands, land subsidence due to adverse groundwater conditions and diminished groundwater quality would be difficult, if not impossible, to fully reverse once these conditions occurred. Adaptive management would be used during the course of the Program to identify situations that could lead to undesirable or less-than-optimum results. In this way, potential mistakes could be identified early, and plans could be altered to minimize any unintentional adverse results."

    Comments: Irretrievable and irreversible impacts associated with the implementation of the proposed programs are not acceptable, and must be identified and mitigated.

34. Page 6.1-43. Management actions listed such as revised carry-over requirements and enforceable water temperature requirements are beyond the purview and jurisdiction of CALFED.

35. Page 7.8-17. What is meant by the use of the term "Tuolumne River Reservoir"?

Attachment A

1. Page A-15. **Tuolumne River.** "Tuolumne River minimum fishery flows below New Don Pedro Dam are maintained between 50 and 300 cfs per an agreement between Turlock and Modesto Irrigation Districts, City of San Francisco, DFG and others (FERC Agreement 2299. The Tuolumne River pulse flow requirements per the FERC agreement have been modeled to coincide with VAMP flows during the April and May pulse period."

    Comments: The current working regarding the agreement between the districts and other parties is not accurate within the context that it's being used. In addition, the VAMP and FERC flow requirements are independent of each other, and do not necessarily occur at the same time. However, for the CALFED modeling, they were assumed to occur simultaneously. The paragraph should be revised to read as follows: "Tuolumne River minimum fishery flows below New Don Pedro Dam are maintained between 50 and 300 cfs per the July 31, 1996 FERC order (FERC Project No. 2299). The Tuolumne River pulse flow requirements per the FERC order have been modeled in this study to coincide with VAMP flows during the April and May pulse period."

2. Page A-19. **Delta Environmental Protections.** "VAMP exports criteria are extended to 61 days in April and May"

   Comments: This bullet item should be clarified. Does the term "VAMP export criteria" refer to limitation on SWP and CVP pumping? If so, is that the only element of VAMP that has been extended in the modeling from 31 to 61 days? For clarification, the VAMP flow requirements are only designed for a 31 day period, and are not "extendable."

3. Table A-5 The table "Proposed Ecosystem Restoration Program Flow Targets (cfs)" identifies significant flows along on the Tuolumne River.

   Comments: It is unclear where the flows on the Tuolumne River is coming from. Insufficient information was available to analyze the potential impacts to the districts. Any redirected impacts associated with the proposal would be unacceptable.

PHASE II REPORT

1. The Table on page 91 showing reservoir sites for additional CALFED consideration incorrectly lists the Montgomery Reservoir site as being on Dry Creek in Stanislaus County. The Montgomery Reservoir site is located in Merced County on a waterbody also known as Dry Creek.

IMPLEMENTATION PLAN

1. The districts do not support the concept of a broad-based Bay-Delta diversion fee. The impacts of our upstream diversions to the ecosystem health of the delta are not significant nor do we stand to gain any benefits from the proposed Bay-Delta program actions. The willingness to pay versus the ability to pay must be carefully weighed, especially as they relate to the socioeconomic conditions prevalent in the San Joaquin River Region.

   No agency, including CALFED, has the authority for imposing a diversion tax on water diversions in the basin. CALFED has provided no rationale for imposing the diversion tax only on the largest water diverters in the basin. The concept developed by CALFED ignores the fact that other water users in the watershed may also be impacting the Bay–Delta watershed. For example, there is no discussion of the applying the diversion tax to groundwater pumpers, including municipalities. Other activities in the watershed, such as logging, M&I discharges (both point and non-point), and urban development have also affected the Bay–Delta.

2. Much of the discussion regarding the Financing Plan is centered on the financing of state and federal water projects. The discussion ignores the fact that most of California's water development has occurred because of locally financed projects where the costs of those projects are paid for by the local beneficiaries. This section should be expanded to recognize the enormous financial undertaking by local agencies.

3. Page 121. MID and TID take exception to the reference that agricultural agencies that sell water would be CALFED program beneficiaries. Please explain how the transfer of water from agricultural sellers would result in lower costs and/or increased productivity. Also, there is no guarantee that regulatory conditions on water diversions would relax.

4. Pages 122-123. MID and TID oppose the concept of a transfer tax to pay the costs of a bureaucratic transfers clearinghouse. If CALFED is partially depending on water transfers to solve the state's water

problems, it should be facilitating transfers, making the transfer process easier and less complicated. Creating more hurdles will only slow down an already burdensome process.

5. Pages 130-131. The real beneficiaries of the Watershed Program appear to be only the upstream areas. None of the other so-called beneficiaries would likely see any benefit from this program. The Watershed Program was conceived at the request of upstream areas. As the program beneficiaries, they should be responsible for its financing.

WATER USE EFFICIENCY PROGRAM PLAN

1. Within the TID and MID service areas, the majority of groundwater recharge is due to the deep percolation of surface water, applied for irrigation, that percolates past the crop's root zone and recharges the aquifer system. Potentially significant adverse impacts could result from agricultural water conservation. Municipalities, private businesses and landowners in the basins rely on groundwater as their sole source of supply. In addition, the agricultural community relies on groundwater to supplement surface water supplies, and in some cases, if they do not have access to surface water supplies, groundwater is their sole source.

   To the extent that agricultural water conservation occurs, less water would be available to recharge the aquifer. In many cases, agricultural conservation comes in the form of converting to drip, microsprinkers or solid set sprinklers. It is easier for these types of systems to utilize groundwater, since utilizing surface water requires additional equipment for filtration, reservoirs, etc. and surface water is not always available on demand. As a result, not only do these types of systems significantly reduce the recharge occurring due to irrigation, many of these systems create an additional demand on the groundwater system.

   Any water "conserved" within the TID and MID service areas is anticipated to be put to other beneficial uses such as urban M & I usage and dedicated groundwater recharge. Additional water is not anticipated to be available for other in-stream purposes.

2. Page 4-42. Within the Turlock Groundwater Basin, there is a localized overdraft on the east side of the basin where agricultural development east of the TID relies entirely on groundwater for their source of supply. This overdraft does not appear to be included in the total annual overdraft identified for the Eastside San Joaquin River region. As indicated above, increased water use efficiency within TID would reduce recharge to the basin and increase the annual overdraft in this region.

WATER TRANSFER PROGRAM PLAN

1. Pages 1-5. The draft states that a water agency should be required to prove it is efficiently using its current water supply before being allowed to either buy or sell water. What is the rationale for requiring the seller to have the same requirements to demonstrate the need for the water as the buyer?

2. Many of the proposed "Potential Solution Options" will require legislative action to enact and should not be treated as givens.

3. Pages 3-11. The statement "In addition, in spite of law to the contrary, there is a concern that conservation measures actually may create a risk to water rights or contract rights to water, if the saved or conserved water is not continually and regularly put to beneficial use" is a valid concern.

   While it is generally true that Water Code § 1011 does provide some limited protection to water rights as a result of water conservation practices, there are indications from the SWRCB that water conserved prior to

the enactment of Water Code § 1011 may be lost due to nonuse (see *A Guide to Water Transfers* [SWRCB, July 1999 Draft]). If conserved water cannot be transferred because it doesn't fit the CALFED definition of "real" water and could be potentially lost through forfeiture, where is the incentive for agencies to improve water use efficiency?

4. Pages 3-13. This entire discussion presents a biased, one-sided view of the refill issue. The discussion is entirely from the point of view of the federal and state export projects. This section should be expanded to include the position of upstream reservoir operators.

WATER QUALITY PROGRAM PLAN

1. It is unclear whether or not the prescribed methods for improving water quality will have the desired affect. Funding and effort should be placed on making the most improvement, at the least cost. Funding assistance should be provided to agencies, and individual farmers if required to make facility changes, etc. in order to improve water quality.

2. Due to the limited information provided regarding the modeling done to evaluate the low dissolved oxygen concentrations in the San Joaquin River, it was difficult, if not impossible, to determine the appropriateness of the assumptions or the accuracy of the data utilized in the modeling, as well as the modeling results.

3. Page 2-1. **Problem Statement.** The problem statement described at the bottom of page 2-1 is not complete. It appears that a portion of the statement has been inadvertently left out. The last sentence on the page is incomplete.

4. Page 2-3. "In addition, San Joaquin River tributaries add oxygen-depleted water after stormwater runoff events in the critical period (late summer). The tributaries introduce low DO water, and they introduce more of the same oxygen-depleting substances..."

   Comments: It is inaccurate to state that the tributaries add oxygen-depleted water. The eastern tributaries (the Stanislaus, Merced, and Tuolumne rivers) provide most of the fresh water to the San Joaquin River system, especially in the summer months. In addition, due to the San Joaquin Valley's semi-arid climate, summer storm events that produce runoff are very rare occurrences.

5. Page 2-10. **San Joaquin River Region.** ***Problem Description*** - "The Merced, Tuolumne, and Stanislaus Rivers are tributaries of the San Joaquin River. A history of channel disturbance on these tributaries is associated with mining activities for aggregate and minerals that deposit large amounts of fine sediment. High sediment deposition affects sediment permeability and, in combination with high water temperature, causes low inter-substrate DO concentrations that negatively affect spawning and rearing habitat of salmonid and other fish. Low inter-substrate DO concentrations also have occurred for all three rivers in association with agricultural runoff and, for the Stanislaus River, after storm events. In addition, high water temperatures in water released by reservoirs may contribute to the low DO concentrations in the substrate of all three tributaries."

   Comments: The paragraph has a variety of inaccuracies with respect to the Tuolumne River. First, it is the history of erosive land use practices and mining disturbance on the Tuolumne River that is associated with large amounts of fine sediment in salmon spawning reaches. High sediment deposition affects sediment permeability causing low inter-substrate DO concentrations that negatively affect spawning and rearing habitat of salmonid and other fish. In addition, the districts are unaware of agricultural runoff adversely impacting DO concentrations in the Tuolumne River. Please provide the listing of the references this information was derived from. Lastly, water temperatures have not been found to contribute to the low DO

concentrations in the Tuolumne River. It is the high sediment deposition that affects the sediment permeability causing low inter-substrate DO concentrations.

6. Page 2-11. "The Tuolumne River Technical Advisory Committee currently is funding work to develop a field technique that measures inter-substrate permeability and DO."

   Comments: The above sentence inaccurately characterizes the Tuolumne River TAC work, and should be changed as follows: "The Tuolumne River Technical Advisory Committee currently is funding work using a field technique that measures inter-substrate permeability."

7. Page 3-7. "Bromide is present in Delta water supplies because sea water intrusion into the Delta and agricultural return flows into the San Joaquin River (which are primarily due to recycling ocean-derived bromide)."

   Comments: The agricultural return flows of concern are associated with west side drainage, and not water coming from the areas serviced by the east side tributaries.

8. Page 3-33. "In addition to saline water entering the Delta from the Bay-ocean, water flows into the Delta through the Sacramento River, the San Joaquin River, and eastside streams (the Cosumnes, Mokelumne, and Tuolumne Rivers)..."

   Comments: The above reference to the Tuolumne River is incorrect. It should be referencing the Calaveras River, not the Tuolumne.

9. Page 7-2. "None of the actions proposed here are expected to entirely solve the salinity problems. However, the combination of local-level actions and basinwide approaches will improve water quality to a large degree."

   Comments: In reviewing the PEIS/EIR, it identifies that water quality, especially salinity may be adversely impacted by some of the proposed components of the alternatives, particularly increased diversions, and agricultural BMPs. It is obvious that there is an existing salinity problem. Any increases in salinity due to the proposed CALFED Program should not be allowed.

10. Page 7-17. "The CALFED program is not requiring new releases of fresh water for dilution but seeks to use what is already available."

    Comments: This statement is inconsistent with mitigation measures listed in the PEIS/EIR which include increased releases from existing reservoirs to mitigate water quality impacts. Dilution is not the solution. Increased releases from existing reservoirs should not be required to mitigate water quality problems.

ECOSYSTEM RESTORATION PROGRAM PLAN – VOLUME I

1. Page 49. "Federal courts have assigned the jurisdiction over several California streams that are used for single-purpose hydropower projects to the Federal Energy Regulatory Commission (FERC)."

   Comment: CALFED should avoid making unsupported legal conclusions. The issue of whether or not FERC jurisdiction extends only to single-purpose hydropower projects has not been decided. This sentence should be stricken from the text.

2. Pages 56-57. "Temperatures below 65°F are considered necessary for successful steelhead rearing."

Comment: See Comment #12 for page 440 of the ERPP Volume II comments.

3. Page 59. "Long-term agreements to adaptively manage reservoirs on these San Joaquin River tributaries are needed to provide the best possible flow and temperature conditions for fish habitat while also protecting other beneficial uses of water... Flexible management will allow temperatures to become a major element in the restoration of ecological functions and benefits throughout Sacramento and San Joaquin River basins."

Comment: Existing operation of Don Pedro Reservoir is already set to provide maximum benefits to downstream aquatic habitat while meeting water supply demands. No opportunities exist on the Tuolumne River to reoperate the reservoir system, as indicated above, while still meeting water supply demands.

ECOSYSTEM RESTORATION PROGRAM PLAN – VOLUME II

1. Page 413. "USFWS (1995) recommended an alternative flow schedule to achieve the goals of the Anadromous Fish Restoration Program (AFRP)."

Comment: The USFWS (1995) flow schedule should not be cited for consideration by CALFED because it is not a part of the FERC Settlement Agreement flows approved by the USFWS as a signatory to the final FERC Settlement Agreement. The Revised Draft Restoration Plan for the Anadromous Fish Restoration Program (USFWS 1997) recommends implementation of the flow schedule specified in the FERC Settlement Agreement and FERC Order, with supplemental flows acquired from willing sellers as needed to improve conditions for all life history stages of chinook salmon.

2. Page 413. "Results of the stream temperature modeling study on the lower Tuolumne River indicate that in recent years temperature limits for salmon spawning were commonly exceeded in a portion of the spawning reach in October. In recent drought years, the first fish have returned to the Tuolumne River in early November, rather than in October as in previous years, because high water temperatures blocked their upstream migration. As with other San Joaquin Basin tributaries, high water temperatures in the San Joaquin Basin during the spring emigration period may be a significant factor affecting smolt survival. Results of the stream temperature modeling study indicate that in May, and at times in late April, smolts emigrating from the Tuolumne River encounter stressful or lethal water temperatures. Temperature was a consideration in formulating the FERC and AFRP revised flow schedules. However, these new schedules will not ease the temperature problems under all ambient conditions, especially in the lower portion of the river during low flows."

Comment: We are not aware of a demonstrated relationship between flow, temperature, and timing. There is no study reported that indicates the salmon run timing in the drought was specifically related to temperature in the Tuolumne River. Because no references are cited, it is difficult to evaluate the ERPP assessment of temperature in the Tuolumne River. Similarly, the USFWS Working Paper on Restoration Needs (USFWS 1995), from which much of this discussion appears to be drawn, does not cite references or studies upon which its conclusions are based. No analysis is presented to support the authors' conclusion that delayed adult arrival during drought years was a result of elevated stream temperatures. Later arrival during the drought years (when relatively few adults were returning) may be the result of low population number, however we are not aware of a consistent relationship between run size and time of arrival. Low numbers may truncate the temporal distribution of adult arrivals. The timing of peak arrival is probably more indicative of adult migration conditions, especially during low population years.

The Districts have developed a temperature model for the Tuolumne River using SNTEMP. This model indicates that suitable rearing temperatures are provided to the mouth of the Tuolumne River through mid-May.

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3. Page 413. "The river now supports fall-run chinook salmon and steelhead and perhaps late-fall-run chinook salmon. The presence of distinct anadromous runs of late-fall-run chinook salmon is not confirmed. Evidence of natural production (observations of young-of-the-year rainbow trout), creel census information, and anecdotal observations of adult steelhead by anglers provides some evidence that a steelhead population still persists in the Tuolumne River (CDFG 1997)."

   Comment: There is no evidence that late-fall-run chinook salmon or steelhead occur in the Tuolumne River, and it is extremely unlikely that a steelhead population persists in the Tuolumne River.

4. Page 414. "Unnaturally high summer flows in the salmon spawning and rearing areas below dams from storage releases for irrigation sustain large populations of predatory fish. These predators are then present in other months and can cause significant young salmon losses."

   Comment: This comment is not appropriate with reference to diversion operations on the Tuolumne River. On the Tuolumne River, almost all irrigation flows are diverted upstream of La Grange Dam and are conveyed through off-channel canal systems.

5. Page 421. "The vision for the Tuolumne River Ecological Management Unit includes maintaining suitable water temperatures, restoring streamflow, gravel recruitment, and stream channel and riparian habitat to improve habitat for chinook salmon, steelhead, native resident fish, native amphibians and reptiles, and wildlife."

   Comment: There is no evidence that steelhead occur in the Tuolumne River.

6. Page 421. "Managing flow releases to provide suitable habitat and water temperatures for salmon and steelhead will be essential for restoring the ecosystem. Flow improvements in the revised agreement and FERC license should be implemented and monitored for effectiveness. Streamflow management in the Tuolumne River will need to be integrated with flow management on other San Joaquin tributaries and the lower San Joaquin River to obtain the greatest benefits."

   Comment: The Districts have implemented the flow schedule specified in the 1995 FERC Settlement Agreement and the 1996 FERC Order, and continue to monitor its effectiveness in improving fall-run chinook salmon habitat and in increasing naturally produced chinook salmon population levels. There is no evidence that steelhead occur in the Tuolumne River.

7. Page 421. "Also important will be restoring more natural channel configurations; restoring gravel recruitment, transport, and cleansing processes; and restoring a balanced fine sediment budget. This will be accomplished by implementing land use and livestock grazing practices, reducing non-native fish populations and habitats that support them, reducing young salmon losses at water diversions, reducing input of contaminants, and reducing illegal salmon harvest."

   Comment: The Districts, US Fish & Wildlife Service, California Department of Fish and Game, Natural Resources Conservation Service, and Tuolumne River Technical Advisory Committee are currently planning and/or implementing several habitat restoration projects that are consistent with the CALFED goals and visions.

8. Page 421. "Streamflows should be enhanced below Don Pedro Dam by providing base flows recommended by DFG. In addition to the DFG recommendation, a spring flow event in late April or early May in dry, normal, and wet years would be provided to support downstream emigration of juvenile salmon and steelhead and to benefit stream channel and riparian habitat." [Note that the specific Tuolumne River flows identified in Target 3 (p. 433) are taken from the 1995 FSA.]

Comment: CDFG developed flow recommendations for critical, dry, below normal, above normal, and wet years (Reynolds et al. 1993). The flow recommendations for dry, below normal, and above normal were incorporated into the 1995 FERC Settlement Agreement flow schedule that is currently being implemented. The FERC Settlement Agreement, of which CDFG is a party to, adopted higher flows than recommended by CDFG for critical years and lower flows than in wet years. The FERC Settlement Agreement flow schedule also requires fall attraction flows in year types ranging from intermediate to wet and spring pulse flows in all year types. In addition, the Vernalis Adaptive Management Plan will provide additional flows in the April-May time period.

9. Page 418. "The [Merced River] hatchery has been valuable in augmenting and sustaining salmon runs in the lower Merced River and in the Stanislaus and Tuolumne rivers and providing fish for study purposes throughout the San Joaquin Basin."

   Comment: The Merced River Hatchery has not been used to directly augment the Tuolumne River salmon population. Hatchery-reared smolts have been released in some years in the Tuolumne River for the purpose of smolt survival studies and not for stock augmentation. There is a growing concern over the effect hatchery produced smolts may have on the goal of increasing the naturally occuring salmon population and protecting any remaining genetic distinction.

10. Page 422. "If future baseline chinook salmon populations do not respond favorably to improved flow and habitat conditions in the Tuolumne River, San Joaquin River, and Delta, a comprehensive evaluation will be made of the need for additional artificial propagation of chinook salmon in the basin."

    Comment: See previous hatchery comment. Since CALFED proposes increased fishery and water quality impacts in the Delta, improving naturally produced salmon survival through the Delta is what needs investigation, not artificial production.

11. Page 437. "It is important to note that all agreed upon or proposed flows ... in the Stanislaus, Tuolumne, and Merced rivers were designed to facilitate chinook salmon recovery, and little or no consideration was given to steelhead recovery in the design of these flow strategies. Flows and temperature requirements of steelhead will need to be evaluated and integrated into the proposed flow regimes."

    Comment: There is no evidence that steelhead occur in the Tuolumne River.

12. Page 440. The ERPP Central Valley Stream Temperatures Target 1 is to maintain the following maximum water temperatures to the downstream end of the spawning reach (as defined by Fish and Game Code section 1505) during summer, fall, and winter and to the mouth of the river during spring:

    June 1 through September 30 – 60°F;
    October 15 through February 15 – 56°F; and
    April 1 through May 31 – 65°F.

    The 65°F maximum is intended to provide suitable rearing conditions for juvenile chinook salmon. The 60°F maximum is intended to provide suitable rearing conditions for juvenile steelhead. Note that the summer temperature indicated is cooler than the spring temperature. This is likely an oversight by CALFED staff since suitable steelhead rearing temperatures would be required year-round, not just in summer. The Districts should anticipate CALFED recommending a maximum water temperature of 60°F in the spawning reach from April 1 through September 30 in subsequent drafts.

    Comment: The 65°F rearing temperature criterion for chinook salmon and 60°F criterion for steelhead are identified in CDFG and USFWS reports and adopted by CALFED. These temperature thresholds, however, may be inappropriate for Central Valley salmonid stocks and should be reevaluated. Experiments on Central Valley steelhead indicate that preferred rearing temperatures range from 60° to 68°F, with the

lethal critical thermal maximum occurring at 80°F (Myrick 1998). Similarly, Baker et al. (1995) evaluated USFWS experimental data and concluded that the water temperature sufficient to cause 50% mortality of chinook salmon smolts released into the lower Sacramento River and the Sacramento Delta and subsequently recovered in trawls at Chipps Island was 73.42 ± 1.94 F. Additional anecdotal evidence suggests that San Joaquin Basin chinook salmon can successfully rear and migrate in water substantially warmer than 65°F. For example, during seining surveys conducted in June 1989, the Districts captured apparently healthy juvenile chinook salmon in water with temperatures ranging from 68 to 77.8°F. In May 1987, the Districts marked several thousand juvenile salmon in the Tuolumne River with dye injections as part of a population census. Two of these marked fish were captured by CDFG on the San Joaquin River (30 miles downstream of the mouth of the Tuolumne). During the eight days between marking and capture water temperatures were very warm, with daily highs in the warmest reaches of the San Joaquin River always exceeding 77°F and often reaching 80.6°F. Chris Myrick of University of California – Davis is currently planning to conduct controlled experiments to evaluate temperature tolerances of Central Valley chinook salmon.

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